RESEARCH COMMUNICATION

Awareness about Pictorial Warnings on Tobacco Products and its Impact on Tobacco Consumers in Bellary, India

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Abstract

Background: In India, 800,000-900,000 people will die annually due to diseases attributable to tobacco. The government of India has taken several measures, including legislation to control tobacco intake. Display of pictorial warnings on tobacco products was one of the legislative measures taken under The Cigarettes and Other Tobacco Products Act (COTPA) enacted in 2003, intended to discourage the consumption of tobacco. Objectives: 1) To study the factors influencing awareness among tobacco consumers about the pictorial warnings used on tobacco products; 2) To study the impact of the current pictorial warnings on tobacco consumers. Materials and Methods: A cross sectional study was conducted from January 2011 to June 2011 at Bellary city, Karnataka. Data were collected with pre-tested and pre-designed semi-structured proforma. Univariate and multivariate analyses were conducited using Epi-info version 3.4.3. Results: In our study out of 600 subjects 435 (72.5%) had seen the pictorial warnings. Among them 111 (25.5%) had interpreted correctly and 63 (14.5%) had given a thought/ tried to reduce or quit tobacco consumption. Younger age group, better educational status, people from urban area, upper socio economic class, lesser duration (< 5 years) of tobacco usage were found to have significant association with awareness about pictorial warnings on tobacco products. However, the impact of pictures on reducing/quitting tobacco consumption was very low. Conclusion: Awareness and its impact on tobacco consumption are poor among our study subjects. There is an urgent need for reconsideration for more effective pictorial warnings.

Keywords: Tobacco - pictorial warnings - awareness - impact

Introduction

The World Health Organisation (WHO) has estimated that India has the second largest number of smokers in the world after China (The Hindu 2008). According to the National Family Health Survey-3, 2005-06, 57% of adult men and 3.1% of adult women used one or more tobacco products (NFHS-3, 2005-06). The Global Youth Tobacco Survey 2006 estimated that in India 17.3% of boys and 9.75 % of girls in the age group 13-15 are using a tobacco product(GYTS 2009). According to the report Tobacco control in India, 800,000-900,000 Indians die annually due to diseases attributable to tobacco. WHO predicts that nearly one million Indians will die from smoking alone in 2010 and 70% of these deaths will be premature (Chaturvedi P 2007). India spends Rs 30,000 crore annually to treat tobacco-related diseases, an amount which is four times the revenue generated by the tobacco industry (MOHFW, GOI 2006). The Cigarettes and Other Tobacco Products Act (COTPA) enacted in 2003 is intended to discourage the consumption of tobacco (Ministry of Law and Justice, Government of India

2003). Pictorial warnings and images are meant to help users to visualise the nature of tobacco-related diseases. They should make them aware that tobacco use can cause serious illnesses and can kill the user. The pictorial warning should be strong to be effective and should repel the user. It should occupy 50% of the principal display area and should be clearly visible. In a country like India with its multilingual and multicultural communities, a pictorial warning can break cultural, regional and language barriers. Moreover, when a large proportion of the population is illiterate, written warnings may be ignored, which is why pictorial warnings are necessary (Karabi M. Majumdar G 2008). In March 10, 2008, The Ministry of Health issued guidelines and notifications on pictorial warnings where the picture must occupy 40% of the space on the packet and the warning should be changed every 12 months (Health for the Millions. VHAI, New Delhi. 2008). It's been around three years of implementation of this legislative act, so with this background we made an attempt to study the awareness and its impact of pictorial warnings on tobacco consumers.

Objectives: 1) To study the factors influencing

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awareness about the pictorial warnings used on tobacco products. 2) To study the impact of the current pictorial warnings on tobacco consumers.

Materials and Methods

We conducted a cross-sectional study from January 2011 to June 2011, where all people aged above 14 years who consume tobacco products (both smoke and smokeless) in Bellary city were included in the sampling frame. Considering the awareness about 65% (Global adult tobacco survey India 2009-10), allowable error 10% the sample size calculated was 266 which were rounded of to 300. The sample size was doubled to reduce the design effect. Bellary city has 35 wards. In each ward one tobacco selling outlet was selected randomly and information was collected from 17 or 18 study subjects from each outlet. After taking a written consent a pretested and semi- structured proforma was used to collect the information on socio-demographic characteristics, awareness about warnings and the effect of the warnings on habit of using tobacco through face to face interview. In India for smoke form products, a picture of X-ray of chest with an arrow mark pointing at a lesion suggesting lung cancer is being used as a pictorial warning and the people who had said picture depicts lung problems or lung cancer or injurious to health was taken as correct response to that pictorial warning. Similarly for smokeless form, a picture of scorpion is being used as a pictorial warning and the people who had said picture depicts injurious to health or poison or danger to our body was taken as correct response for that pictorial warning.

Statistical analysis was done using Epi-info software version 3.4.3, where we first computed the proportion of tobacco consumers who had seen pictorial warning and among them we computed the proportion of tobacco consumers who interpreted correctly and the impact of the pictorial warnings on their habit. The factors influencing awareness and its impact were analysed using Univariate and multivariate analysis.

Table 1. Socio-demographic Variables of Study Sample

Variable	Frequency	Percentage
Age(in years)		
<25	85	14.2
25-32	97	16.2
33-39	86	14.3
40-46	96	16
>46	236	39.3
Locality		
Urban	230	38.3
rural	370	61.7
Education		
Illiterate	247	41.2
Primary	176	29.3
High school	101	16.8
Graduate	76	12.7
Socio economic status		
Upper class	60	10
Upper middle	100	16.7
Lower middle	55	9.1
Upper lower	250	41.7
Lower class	135	22.5
Type of family		
Joint	218	36.3
nuclear	382	63.7

Table 2. Univariate Analysis Showing Awareness About the Pictorial Warnings on Tobacco Products

Variable	Picture seen n (%)	Not seen n (%)	OR	95%CI	p-Value
Total (n=600)	435(72.5)	165(27.5)			
Age(in years)					
<25 (n=85)	76(89.4)	9(10.6)	5.2	2.4-10.9	0.00
26-32 (n=97)	85(87.6)	12(12.4)	4.3	2.2-5.4	0.00
33-39 (n=86)	67(77.9)	19(22.1)	2.1	1.2-3.8	0.00
40-45(n=96)	61(63.5)	35(36.5)	1.07	0.6-1.7	0.77
>46 (n=236)	146(61.9)	90(38.1)	1	-	-
Address					
Urban(n=230)	192(83.5)	38(16.5)	2.6	1.7-3.9	0.00
Rural (n=370)	243(65.7)	127(34.3)	1	-	-
Education					
Graduate(n=76)	71(93.4)	5(6.6)	10.5	4.09-26.9	0.00
High school(n=101)	92(92.1)	9(8.9)	7.5	3.6-15.6	0.00
Primary school(n=176)	130(73.9)	46(26.1)	2.08	1.3-3.1	0.00
Illiterate(n=247)	142(57.5)	105(42.5)	1	-	-
Socio economic status					
Upper class(n=60)	51(85)	9(15)	3.3	1.5-7.3	0.00
Upper middle(n=100)	90(90)	10(10)	5.3	2.6-11.0	0.00
Lower middle(n=55)	40(22.7)	15(27.3)	3.1	0.8-11.3	0.07
Upper lower(n=250)	171(68.4)	79(31.6)	1.2	0.8-1.9	0.21
Lower class(n=135)	83(61.5)	52(38.5)	1	-	-
Type of family					
Nuclear (n=382)	278(72.8)	104(27.2)	1.03	0.7-1.5	0.84
Joint (n=218)	157(72)	61(28)	1	-	-
Duration of usage (in years)					
Less than 5(n=126)	104(82.5)	22(17.5)	2.2	1.3-3.7	0.00
6 to 10(n=89)	71(79.8)	18(20.2)	1.8	1.0-3.3	0.02
More than 10(n=385)	260(67.5)	125(32.5)	1	-	-

Results

The present study includes 600 subjects. Nearly 40% were in the age group above 46 years, and nearly 62% were from rural area. Nearly 41 % were illiterate and nearly about 42% from upper lower class and most of them were from nuclear families (Table 1).

In our study we found that younger age group (< 25 years), better educational status, people from urban area, upper socio economic class, lesser duration (< 5 years) of tobacco usage were found to have significant association with awareness about pictorial warnings on tobacco products (Table 2).

These significant variables were subjected to multiple logistic regression analysis and we found that that younger age, urban locality , better education status , better socio

economic status are the important independent determents of awareness about the pictorial warnings (Table 3).

In our study we found that younger age group (< 25 years), better educational status, people from urban area, nuclear family, lesser duration (< 5 years) of tobacco usage were found to have significant association with the correct interpretation of the pictorial warnings on tobacco products (Table 4).

These significant variables were subjected to multiple logistic regression analysis and we found that that better education status and people from nuclear family emerged as the important independent determents of correct interpretation of the pictorial warnings on tobacco products (Table 5).

In our study we found that younger age group (< 25 years), people from urban area, joint family, upper lower class, who had only primary education, duration (6-10 years) of tobacco usage were sensitive to pictorial warnings and they gave a thought/attempted to reduce/quit tobacco use. But however it was statistically not significant except in people who had duration of 6-10 years of tobacco usage (Table 6).

Table 3. Multivariate Analysis Showing in Awareness About the Pictorial Warnings on Tobacco Products

Variable	OR	CI for OR	p-Value
Age(in years)			
33-39	2.2	1.16-4.2	0.00
26-32	3.6	1.6-1.8	0.00
<25	3.4	1.3-8.9	0.00
Address			
Urban	1.6	1.0-2.5	0.04
Education			
Graduate	5.1	1.9-13.8	0.00
High school	5.4	2.5-11.6	0.00
Primary school	1.6	1.04-2.5	0.03
Socio economic status			
Upper class	2.7	1.1-6.3	0.01
Upper middle	4.7	2.1-10.1	0.00

Table 5. Multivariate Analysis Showing Interpretation About the Pictorial Warnings on Tobacco Products

Variable	OR	95 % CI	p-Value
Education			
Graduate	6.3	4-6.0	0.00
High school	2	1.0-3.9	0.04
Family			
Nuclear	2	1.2-3.4	0.00

Table 4. Univariate Analysis Showing Interpretation About the Pictorial Warnings on Tobacco Products

Variables	Correct interpretation n (%)	Wrong interpretation n (%)	OR	95% CI	p-Value
Total (n=435)	111(25.5)	324(74.5)			
Age(in years)					
<25(n=76)	39(51.3)	37(48.7)	4	2.2-7.4	0.00
26-32(n=85)	19(22.4)	66(77.6)	1.1	0.5-2.1	0.74
33-39(n=67)	10(14.9)	57(85.1)	0.6	0.3-1.4	0.33
40-45(n=61)	13(21.3)	48(78.7)	1.04	0.5-2.1	0.9
>46(n=146)	30(20.5)	116(79.5)	1	-	-
Address					
Urban (n=192)	61(31.8)	131(68.2)	1.7	1.1-2.7	0.00
Rural (n=243)	50(20.6)	193(79.4)	1	-	-
Education					
Graduate (n=71)	30(42.3)	41(57.7)	3.9	2.0-7.6	0.00
High school (n=92)	28(30.4)	64(69.6)	2.3	1.2-4.5	0.00
Primary school(n=130)	31(23.8)	99(76.2)	1.7	0.9-3.1	0.08
Illiterate (n=142)	22(15.5)	120(84.5)	1	-	-
Socio economic status					
Upper class(n=51)	17(33.3)	34(66.7)	1.8	0.8-3.8	0.11
Upper middle(n=90)	26(28.7)	64(71.1)	1.4	0.7-2.8	0.23
Lower middle(n=40)	10(25)	30(75)	0.2	0.03-1.9	0.18
Upper lower(n=171)	44(25.7)	127(74.3)	1.2	0.7-2.2	0.40
Lower class (n=83)	14(36.9)	69(63.1)	1	-	-
Type of family					
Nuclear (n=278)	85(30.6)	193(69.4)	2.2	1.3-3.6	0.00
Joint (n=157)	26(16.6)	131(83.4)	1	-	-
Duration of usage (in years)					
<5(n=104)	44(42.3)	60(57.7)	3.2	1.9-5.3	0.00
6 to 10 (n=71)	19(26.8)	52(73.2)	1.6	0.8-2.9	0.12
>10(n=260)	48(18.5)	212(81.5)	1	-	-

Table 6. Univariate Analysis on Impact of Picture on Habit on Consumption of Tobacco

Variables	Reduced/Quit n (%)	No effect n (%)	OR	95% CI	p-Value
Total (n=111)	63 (56.8)	48(43.2)			
Age(in years)					
<25 (n=39)	26(66.7)	13(33.3)	2.2	0.8-6	0.09
26-32 (n=19)	10(52.6)	9(47.4)	1.2	0.4-4	0.68
33-39 (n=10)	4(40)	6(60)	0.7	0.1-3.2	0.71
40-45 (n=13)	9(69.2)	4(30.8)	2.5	0.6-10.2	0.17
>46 (n=30)	14(46.7)	16(53.3)	1	-	-
Address					
Urban (n=61)	35(57.4)	26(42.6)	1.05	0.4-2.2	0.88
Rural (n=50)	28(56)	22(44)	1	-	-
Education					
Graduate (n=30)	14(46.7)	16(53.3)	1.05	0.3-3.1	0.93
High school (n=28)	17(60.7)	11(39.3)	1.8	0.5-5.7	0.28
Primary school(n=31)	22(71)	9(29)	2.9	0.9-9.1	0.06
Illiterate (n=22)	10(45.5)	12(54.5)	1	-	-
Socio economic status					
Upper class (n=17)	8(47.1)	9(52.9)	1	0.2-4.0	0.98
Upper middle (n=26)	12 (46.2)	14 (53.8)	0.9	0.2-3.5	0.97
Lower middle (n=10)	6 (60)	4(40)	1.4	0.2-7.5	0.67
Upper lower (n=44)	31 (70.5)	13 (29.5)	2.7	0.8-9.0	0.1
Lower class (n=14)	6 (42.9)	8 (57.1)	1	-	-
Type of family					
Nuclear (n=85)	48(56.5)	37 (43.5)	0.9	0.3-2.3	0.91
Joint (n=26)	15(57.7)	11 (42.3)	1	-	-
Duration of usage (in Yrs)					
<5 (n=44)	26 (59.1)	18 (40.4)	1.7	0.7-3.9	0.2
6 to 10 (n=19)	15 (78.9)	4 (21.1)	4.4	1.2-15.3	0.01
>10 (n=48)	22 (45.8)	26(58.2)	1	-	-

Discussion

In our study out of 600 subjects 435 (72.5%) had seen the pictorial warnings. Among the subjects who had seen the pictorial warning, 111 (25.5%) had interpreted correctly and 63(14.5%) had given a thought/ tried to reduce or quit tobacco consumption. Younger age group (< 25 years), people from urban area, joint family, upper lower class, who had only primary education, duration (6-10 years) of tobacco usage were sensitive to pictorial warnings and they gave a thought/attempted to reduce/ quit tobacco use. But however it was statistically not significant except in people who had duration of 6-10 years of tobacco usage.

In our study subjects, the awareness of pictorial warnings and motivation to reduce/quit tobacco consumption after noticing the warnings was less when compared to the studies conducted elsewhere like A study on "Cigarette package health warnings and interest in quitting smoking - 14 countries, 2008—2010" by Centers for Disease Control and Prevention (CDC) said that among men in 12 of the countries and women in seven countries, >90% of smokers reported noticing a package warning in the previous 30 days. The percentage of smokers thinking about quitting because of the warnings was >50% in six countries and >25% in men and women in all countries except Poland (CDC, MMWR 2011).

In randomised control trial conducted by Schneider et al. (2011) where one group of 44 adult smokers were made to view only the written warnings and another similar group of 44 adult smokers were made to view corresponding pictorial warnings. This study showed that pictorial warnings were associated with a significantly higher motivation to quit. A pictorial warning was also associated with higher fear intensity.

In a similar randomised control trial conducted in Malasia by Fathelrahman et al. (2010), where the study population included 140 adult male smokers who were enrolled in a randomized trial to view either the new pictorial warnings (intervention) or the old text-only warnings (control). This study showed that Exposure to the pictorial warnings resulted in increased awareness of the risks of smoking, stronger behavioral response to the warnings and increased interest in quitting smoking.

This difference in awareness and motivation to quit tobacco consumption when compared to other studies may be due to the fact that the present pictorial warnings proposed by Government of India are ineffective in increasing the awareness and motivating the people to reduce/quit tobacco consumption. So the present pictorial warnings are not serving the purpose for which they are implemented. The same was confirmed by a study conducted in India by Oswal et al., on "Are current tobacco pictorial warnings in India effective?" showed that the mandated pictorial warnings do not serve the desired purpose since they are not properly understood. The scorpion becomes associated with the product in a non-scientific manner. X-rays of lung are hardly understood by anybody and pictures of diseased lungs are not used by tobacco manufacturers. Most people have seen text and pictorial warnings on smokeless and smoking tobacco products, but they lack relevance to the text messages. The study also recommended that people would like to see the warnings mainly in local language and want them

to be placed on the top or middle of both sides of tobacco packaging (Oswal et al., 2011).

So there is a need for reconsideration of present pictorial warnings such that more effective pictorial warnings should be developed and implemented to combat tobacco consumption. But however which picture will be good enough to serve the purpose of increasing the awareness and there by motivating the people to reduce/quit tobacco consumption has to be answered. The same was attempted by a study conducted by Hawari, et al. (2011) among 450 young adults of Jordan, where the survey was aimed at gauging participants' perceptions of salience, fear elicitation, and gained information as well as participants' motivation to remain non-smokers or quit smoking after viewing each of the four proposed new pictorials as well as the current pictorial used in Jordan. Study revealed that in smokers, only one proposed pictorial had significantly more smokers perceiving it as salient or adding to information when compared to the current pictorial. More smokers reported fear when observing the proposed pictorials compared with current pictorial, but overall proportions reporting fear were generally less than 50%. Furthermore, all new pictorials motivated significantly more smokers to consider quitting compared with the current pictorial; however, the overall proportion of smokers reporting motivation was <25%. Among non smokers, significantly more respondents perceived the new pictorials as salient and fear-eliciting compared to the old pictorial, but there were no major differences in information added. Motivation to remain non-smokers was comparable between the old and new pictorials (Hawari et al., 2011).

In an another study where a telephonic survey conducted by Hammond et al. (2006) among 9058 adult smokers from four countries showed that smokers who noticed the warnings were significantly more likely to endorse health risks, including lung cancer and heart disease. In each instance where labeling policies differed between countries, smokers living in countries with government mandated warnings reported greater health knowledge. Warnings that are graphic, larger, and more comprehensive in content are more effective in communicating the health risks of smoking (Hammond et al., 2006).

So there is a pressing need to develop more scientific and effective pictorial warnings for which field based survey with new proposed pictorial warnings should be conducted throughout the country such that more suitable pictorial warnings could be selected which can address all the issues related to increasing the awareness and motivation to quit tobacco consumption among all the folks.

In this regard more recently the Ministry of Health and Family Welfare has notified new pictorial health warnings under vide No.G.S.R. 417(E) of Gazette Notification dated 27th May 2011 and G.S.R. 570(E) dated 26th July 2011, for mandatory display of new specified health warnings on all tobacco products. As per the rules these pictorial warnings shall be displayed on all tobacco products packages from 1st December 2011. However the impacts of these new pictorial warnings are to be watched carefully in coming future.

In conclusion, in our study we found that most of the tobacco consumers have seen pictorial warnings on tobacco products, but hardly few of them have comprehended the pictorial warnings correctly. The present pictorial warnings were able to motivate very few tobacco consumers to quit/reduce tobacco consumption. Therefore the impact factor was very less among tobacco consumers.

Acknowledgement

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